

**WHAT IS CLAIMED IS:**

1. A method for detecting an intruder, said method comprising the steps of:

transmitting, from a transmitting impulse radio unit, an  
5 impulse radio signal including a series of impulses;

receiving, at a receiving impulse radio unit, the impulse  
radio signal;

generating, at the receiving impulse radio unit, a first  
waveform corresponding to the impulse shape of the received  
10 impulse radio signal;

receiving, at the receiving impulse radio unit and at a  
subsequent time, the impulse radio signal;

generating, at the receiving impulse radio unit, a second  
waveform corresponding to the impulse shape of the impulse radio  
15 signal received after the subsequent time; and

comparing the first waveform to the second waveform to  
determine whether there is a change between the first waveform  
and the second waveform caused by the intruder entering a  
protection zone.

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2. An intrusion detection system comprising:

a transmitting impulse radio unit capable of transmitting  
an impulse radio signal including a series of impulses; and

a receiving impulse radio unit capable of comparing at  
25 least two scanned waveforms corresponding to at least two  
impulse shapes of the impulse radio signal that were generated  
at different times to determine whether a protection zone has  
been breached by an intruder.

3. The intrusion detection system of Claim 2, further comprising at least one more receiving impulse radio units that operate in a similar manner as the receiving impulse radio unit thus enabling the transmitting impulse radio unit to determine a  
5 current position of the intruder within the protection zone.

4. The intrusion detection system of Claim 3, wherein said transmitting impulse radio unit is capable of interacting with each of the receiving impulse radio units to track the  
10 movement of a test subject so as to create a shape of the protection zone.

5. The intrusion detection system of Claim 3, wherein said transmitting impulse radio unit further includes at least  
15 one directive antenna.

6. The intrusion detection system of Claim 5, wherein said at least one directive antenna enables the transmitting impulse radio unit to transmit the impulse radio signal in a  
20 predetermined direction.